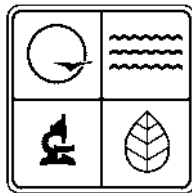


Preventing Pollution at Marinas



A Guide to Environmental Compliance and Pollution Prevention at Marinas in Missouri



Missouri Department of Natural Resources
Environmental Assistance Office
1-800-361-4827

March 2005

The information in this publication is intended as general guidance only. For specific requirements, the reader should consult the appropriate federal and state laws and rules.

Funding for development of this document was provided in part by a Pollution Prevention Incentives for States grant from the U.S. Environmental Protection Agency (EPA).



Missouri Department of Natural Resources
"Integrity and excellence in all we do"

Preventing Pollution at Marinas

As environmental protection becomes more and more important across the nation, industries of every type are faced with some big questions—

- What environmental regulations apply to my facility?
- How do I comply with those regulations?
- Are there things I can do to reduce the regulations I must comply with?
- How can I protect myself from fines and liability?
- How do I protect my workers and myself from environmental hazards at the marina?

This publication was developed to help marinas in Missouri answer some of those questions. The guides provide basic information about regulatory requirements and suggestions for protecting yourself, your workers and the environment through pollution prevention.

Each guide sheet in this publication deals with separate issues that marinas may face. The guides may not answer every question you have, but after reviewing them you should be able to decide if you need more information or assistance on a particular issue. The topics are listed on the back of this page.

The Missouri Department of Natural Resources has an Environmental Assistance Office (EAO) to help people like you comply with environmental regulations and find ways to prevent pollution. If you need assistance, call EAO at 1-800-361-4827.

Guide Sheets for Marinas

Pollution Prevention
404 Permits/401 Certifications
Aerosol Cans
Air Quality Permits
Backflow Prevention
Boat Waste
Drinking Water
Fluorescent Bulbs
Fueling Activities
Hazardous Waste
Hull Repair, Cleaning, and Maintenance
Lead-Acid Batteries
Mercury Switches
Paint Booth Filters
Paint Waste
Painting
Parts Washers
Petroleum Storage Tanks
Shop Towels
Solid Waste
Solvents
Spills
Storm Water
Used Oil Disposal and Recycling
Used Oil Filters
Used Oil Storage
Waste Tires
Wastewater

If you have comments or suggestions for ways to improve these guide sheets, please let us know by calling EAO at 1-800-361-4827.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Pollution Prevention

Marina's deal with many things that can affect the environment. Materials such as paints, solvents, used oil, motor fuel and solid waste can harm the environment and people if they are not properly managed.

State and federal environmental regulations explain what legally can and cannot be done with these materials. The regulations describe how pollution or waste should be controlled, stored, treated or disposed of. A better solution is to prevent the waste or pollution.

What is Pollution Prevention?

Pollution prevention is simply not making the waste or pollution in the first place. It means doing what we can to reduce the amount and toxicity of the pollution we generate.

Preventing pollution may be something as simple as using a catch-basin to prevent spills or something as complex as redesigning your operation to increase efficiency and reduce waste. Simple things like choosing non-hazardous solvents and cleaners can protect the environment and reduce the number of environmental regulations you are faced with. Pollution prevention means thinking about the environmental impact of your actions and trying to limit that impact.

Why Pollution Prevention?

When we generate waste or pollution, we must safely and legally manage that waste or pollution. Whether it is household trash or waste from a business, managing wastes costs money. And usually the things we discard are items we bought. A good example is paper towels. We buy them, use them once, then pay again to dispose of them.

If we reduce the amount of waste we generate, we save money. It's as simple as that. Reducing costs is a major reason to prevent pollution. Here are a few others:

- Improved work environment and worker safety.
- Reduced liability.
- Increased efficiency.
- Fewer regulatory requirements.
- Better environmental protection.
- Enhanced marketing and public relations opportunities.

What can be done at a marina?

There are many ways to prevent pollution at a marina. Each of these guide sheets has suggestions on ways to prevent pollution. Here are a few general tips:

- Keep work areas clean and well organized to help prevent accidents.
- Use drip pans where spills frequently occur.
- Fix leaks immediately.
- Do not buy more than you need. The leftovers may become waste.
- Purchase the largest practical container (containers usually end up as waste), but do not purchase more than needed.
- Purchase the least toxic or hazardous product available. Check the material safety data sheets for products you purchase. If the product is toxic or hazardous, ask your supplier for alternatives.
- Use the oldest items first (first-in, first-out).
- If you do have excess or unneeded materials, see if your supplier can take them back.
- Include the cost of disposal when making purchasing decisions. What looks like the cheapest option may cost more because of disposal or other management costs.
- Store materials in a way that keeps them from being damaged.
- Inspect storage areas regularly for leaks.
- Make sure all items are clearly labeled. Store products in original containers.
- Store wastes separately. Be sure they are properly labeled to make it easier to reuse or recycle them.
- Store items that could leak in a place where leaks will be contained and easily spotted.
- Make a list of your wastes. Then try to find a way to eliminate each of them. For example, if you throw away paper towels consider using washable shop rags.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



404 Permits 401 Certification

If you plan to build a dock on your property, you will need a Federal 404 Permit and a State 401 Certification.

Section 404(a) of the Clean Water Act, requires you to get a Federal 404 Permit from the U.S. Army Corps of Engineers (Corps) before excavating in or putting materials or fill into jurisdictional waters of the United States. The State of Missouri requires a 401 Certification for any project that needs a Federal 404 permit.

"Waters of the United States" include:

- Lakes
- Rivers
- Streams (including dry streams)
- Wetlands (including dry wetlands)

Indications that a wetland exists in a seemingly dry area include:

- Standing water early in the year for a week or more
- Black, stained leaves on the ground
- Trees with swollen trunks at ground level
- Area contains water loving plants

The following are **not** generally considered "waters of the U.S.":

- Non-tidal drainage and irrigation ditches
- Artificially irrigated areas
- Artificial lakes or ponds
- Artificial reflecting or swimming pools
- Water-filled depressions

Missouri is split into different U.S. Army Corps of Engineers Districts. Use the map located at www.dnr.mo.gov/wpscd/wpcp/401/corps-map3.gif to find out which district covers your area. Contact the Corps of Engineers to determine if your project will require a 404 permit. Contact the Missouri Department of Natural Resources Water Pollution Control Program to obtain a 401 Certification if your project requires a 404 permit.

Remember

- If you plan to excavate or fill in waters of the United States, contact the U.S. Army Corps of Engineers and get any necessary Federal 404 Permits **before** you begin.
- If your project requires a Federal 404 Permit, contact the department and get the required 401 Certification.

Additional Information:

"401 Water Quality Certification" - www.dnr.mo.gov/wpscd/wpcp/401/wpcp-401.htm

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Aerosol Cans

Marinas use aerosol cans for various reasons. Spray cans may contain hazardous chemicals, such as 1,1,1-trichloroethane or toluene. In some cases, the can may be hazardous waste because of what it contains or once contained. It is important to carefully manage this waste to protect human health and the environment.

Aerosol cans are often recycled as scrap metal. If the empty cans are recycled, the can and the residue inside are not considered waste so most hazardous waste regulations do not apply. If the can is not empty, it can still be recycled if the recycler is able to properly capture and manage the vented contents. However, if the aerosol can contained an acutely hazardous waste such as some pesticides, it is unlikely that the recycler will be able to properly clean the container. These containers will probably require disposal. See the *Hazardous Waste* guide sheet for more information on acutely hazardous waste.

If your aerosol cans are empty, you can recycle them or send them to a sanitary landfill for disposal.

If you have one or two waste aerosol cans infrequently and you are a conditionally exempt small quantity generator (CESQG), you can send them to a sanitary landfill for disposal (even if they are not empty), if the landfill is willing to accept them. If the can contains pesticide, paint or other hazardous materials, you must have approval from the landfill. If you generate more than two cans, you must find out whether the waste you have is hazardous waste and manage it properly. See the *Hazardous Waste* guide sheet for more information.

Ask your supplier to take back any defective cans. The manufacturer can sometimes repack the materials. Many products are also available in non-pressurized spray bottles or can be purchased in bulk and used in non-pressurized or refillable pressurized sprayers.

Remember

- Aerosol cans may be hazardous waste. You need to find out whether your waste is hazardous and manage it properly.
- Empty cans, and sometimes cans that are not empty, can be recycled. Sometimes the contents can be reused.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of waste can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Decide if you actually need these products. If not, use up what you have and do not purchase any more. If you need it, limit their use and look for aerosol cans that do not contain hazardous chemicals.

- ✓ Switch to non-aerosol products if possible, such as manual pump cans or bottles, especially if they can be refilled.
- ✓ Use as much of the material as possible, for its intended purpose.
- ✓ Purchase only the amount you need.
- ✓ Follow label directions to prevent clogging.
- ✓ If your aerosol cans contain hazardous materials, look for non-hazardous alternatives.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Air Quality Permits

In Missouri, we enjoy clean air over most of the state. However, the St. Louis metropolitan area does not meet the federal clean air standard for ozone, a pollutant that affects the respiratory system and is especially harmful to those with asthma and other respiratory diseases. The St. Louis metropolitan area consists of the city of St. Louis and St. Louis, Franklin, Jefferson and St. Charles counties. Because vapors from gasoline station operations contribute to ozone pollution, equipment is required of stations to reduce the vapor released to the air. For marinas, the equipment is required on the storage tanks. This equipment, called Stage I vapor recovery, captures part of the fumes released when the tanker delivers fuel into the marina's storage tanks. The regulation also requires that delivery trucks use a method called submerged fill to minimize splash that generates vapor in the tank.

A construction and operating permit is required in the St. Louis metropolitan area to ensure that all vendors of gasoline comply with the requirement. There are links at the end of this document to the applications for permits in the city of St. Louis, St. Louis County and the rest of the metropolitan area. The Department of Natural Resources delegates air pollution control responsibility to the city of St. Louis and to St. Louis County. You can obtain paper copies of the application forms by calling the department's publications distribution office at 1-800-361-4827.

Outside the St. Louis area, ozone pollution is not currently a problem and the permits are not required. However, the U.S. Environmental Protection Agency has enacted a new, more stringent standard for ozone concentration, and the Kansas City metropolitan area may not meet the new standard in the next few years. If that happens, it is likely that marinas in the Kansas City area will also have to install Stage I vapor recovery. If your marina is in Jackson, Buchanan, Cass, Clay, Platte or Ray county, call the department's Environmental Assistance Office at 1-800-361-4817 to find out if Stage I is required and get a permit application.

Remember

- Gasoline vapors contribute to the formation of ozone, a harmful air pollutant.
- Gasoline storage tanks in the St. Louis metropolitan area are required to be equipped with Stage I vapor recovery and have construction and operating permits from the air pollution control agency with jurisdiction in their county.
- Gasoline delivery trucks in the St. Louis metropolitan area must use submerged fill.

Vapor Recovery Permit Application Links

Franklin, Jefferson and St. Charles counties:

www.dnr.mo.gov/oac/forms/780-1561.pdf

St. Louis County (Health Department):

www.dnr.mo.gov/oac/forms/SLCntyVapor.PDF

St. Louis City:

www.dnr.mo.gov/oac/forms/SLCityVapor.PDF

For More Information

Missouri Department of Natural Resources

Environmental Assistance Office

P.O. Box 176

Jefferson City, MO 65102-0176

1-800-361-4827 or (573) 526-6627

www.dnr.mo.gov/oac/env_assistance.htm



Backflow Prevention

It is important that you prevent contamination of your business's water supply, whether it is provided by a public water supply or by your private water well. A "cross-connection" is a physical link connecting a source of pollution or contamination with a potable water supply. "Backflow" is the unwanted reversal of flow in a water distribution system. Backflow through a cross-connection can contaminate the potable water supply in your building, on your block, or throughout the entire water system.

Backflow prevention devices protect the water supply from backpressure and backsiphonage hazards. Backflow devices are placed on water lines entering the building and at points in the water system where it connects to a potential source of contamination. Backflow prevention devices include:

- Airgaps
- Reduced pressure principle backflow prevention assemblies
- Double check valves
- Vacuum breakers
- Barometric loops

The device needed at a particular site depends on the degree of hazard involved, location accessibility, and whether the potential backflow is due to backpressure or backsiphonage. If your marina is connected to a public water supply, Missouri's drinking water backflow prevention regulations require that you install a Class I backflow hazard prevention device to protect the public water supply from backflow hazards within your premises. The backflow prevention assembly must be installed on your water service line. It is a good idea to put additional backflow prevention devices at any location in your business where contamination could occur. Contact your local public water supply to determine if they have additional backflow prevention requirements.

If your business is connected to your own private water supply, you should install backflow prevention devices to protect you, your employees and your customers from the risk of contaminated drinking water.

The Missouri Department of Natural Resources maintains a list of approved backflow prevention assemblies. To obtain a copy, call the Environmental Assistance Office at 1-800-361-4827.

Remember

- If possible, eliminate cross-connections from your water system.
- If you are connected to a public water supply system, you are required to have backflow prevention assemblies or devices.
 - Obtain a copy of your water utility's backflow prevention ordinance and regulation.
 - Install the required backflow prevention devices.
 - Inspect and test backflow prevention devices annually.
- Preventing backflow into your water supply protects you, your employees and your customers.

Additional Resources

"Cross-Connection Control Manual", EPA 816-R-03-002, February 2003, found at www.epa.gov/safewater/crossconnection.html.

"Tech Brief – Cross Connection and Backflow Prevention", National Drinking Water Clearinghouse, found at www.nesc.wvu.edu/ndwc/articles/OT/WI04/TB_WI04.html.

Missouri Code of State Regulations 10 CSR 60-11.010 Prevention of Backflow found at www.sos.mo.gov/adrules/csr/current/10csr/10c60-11.pdf.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Boat Waste

Boaters have a vested interest in clean water. Clean water is an essential element of good boating. Improper disposal of sewage and waste from boats can degrade water quality.

It is illegal to discharge garbage, trash, oil, or hazardous substances into federal or state waters. Store trash and garbage in an onboard container and recycle or dispose of it on shore. Collect and recycle used oil.

If your recreational boat has toilet facilities installed, it must have a Type I, Type II or Type III marine sanitation device (MSD) onboard. All MSDs must be U.S. Coast Guard certified and in operable condition. Waste from the MSD should be discharged into a pump-out facility on shore. In Missouri, all waters have been designated as no-discharge waters and it is illegal to discharge sewage, treated or untreated, into the state's freshwaters.

Remember

- Discharge of wastes in to lakes, rivers and streams is harmful to water quality and is illegal.

Pollution Prevention Options

Pollution Prevention can save money, protect the environment, and reduce risk to people. Here are some suggestions:

- ✓ Properly operate and maintain marine sanitation devices.
- ✓ Recycle cans, bottles and paper.
- ✓ Use onshore public restrooms when docked.
- ✓ Use sewage pumpout facilities and portable toilet dump stations for MSD sewage disposal.
- ✓ Choose enzyme-based deodorizers for waste in holding tanks or portable toilets.
- ✓ Walk your pet in established "pet relief" areas. Clean up after your pet.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Drinking Water

Many marinas are located in areas that are not served by a community public water supply. Marinas served by privately owned wells that provide drinking water (including coffee and ice) to an average of 25 or more people daily, 60 days out of the year, or that provide 15 or more service connections, are defined as a "public water system." Public water systems are regulated by the department's Public Drinking Water Branch regulations. A public water system includes the well and any treatment, reservoir tanks and distribution pipes used in connection with the system.

If you are planning to construct, alter or extend a public water system, contact the department to obtain required construction permits. Public water supply wells must be constructed in accordance with Public Drinking Water Branch design standards. In addition, a public water system requires a permit to dispense, has water testing and reporting requirements, and *may* require a certified operator.

Remember

- Obtain required permits before drilling a public water system well.
- Use only permitted well drillers and pump installers.
- Public water systems have ongoing water testing and reporting requirements.

Pollution Prevention Options

Pollution prevention practices can protect the water quality at your Marina.

Take steps to protect the quality of your well water, regardless of whether or not your well is a "public water system." Protecting your well protects the health of you, your employees, your customers and the environment. Suggestions are listed below:

- ✓ When selecting a location for a new well or septic tank, follow the required setback and separation distances listed in the regulations.
- ✓ At a minimum, test your water every year for bacteria, nitrates, pH and total dissolved solids. Public water systems must test more frequently.
- ✓ Only hire well drillers and pump installers who are permitted by the Missouri Department of Natural Resources.
- ✓ Visually inspect the condition of your well casing for holes or cracks. The casing should extend 12 inches above the ground surface.
- ✓ Slope the area around the well to drain surface runoff away from the well.
- ✓ Install a lockable well cap or sanitary seal to prevent unauthorized entry to the well.
- ✓ Have your well inspected by a permitted well driller or pump installer every 10 to 15 years.
- ✓ Disinfect drinking water wells once a year with bleach or hypochlorite granules.

- ✓ Well equipment does not last forever. Plan for repair and replacement costs.
- ✓ Use backflow prevention to protect well water (see *Backflow* guide sheet).
- ✓ Avoid mixing or storing pesticides, fertilizers, herbicides, degreasers, fuels or other pollutants near wells.
- ✓ Plug abandoned wells.

Additional Resources

Missouri's drinking water regulations are found in 10 CSR 60 Public Drinking Water Program and can be viewed at www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-60. You can contact the department's Public Drinking Water Branch at (573) 751-5331 or at 1-800-361-4827

Missouri's well regulations are found in 10 CSR 23 Division of Geology and Land Survey and can be viewed at www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-23. You can contact the department's Geological Survey and Resource Assessment Division (GSRAD) at (573) 368-2100 or 1-800-361-4827. Contact GSRAD for lists of permitted well drillers and pump installers.

"*Home A Syst: Drinking Water Well Management*" can be downloaded at <http://muextension.missouri.edu/explorepdf/envqual/EQM103f.pdf>. The associated assessment worksheet can be downloaded at <http://muextension.missouri.edu/explorepdf/envqual/EQM103w.pdf>.

"*Pipeline: How to Keep Your Water Well*", Summer 2002, can be downloaded at www.nesc.wvu.edu/nsfc/plarchiveframe.html.

"*Bacteria in Drinking Water*" WQ102 can be downloaded at <http://muextension.missouri.edu/explore/envqual/wq0102.htm>. This document has instructions for disinfecting wells.

"*Drinking Water from Household Wells*" EPA 816-K02-003 can be downloaded at www.epa.gov/safewater/privatewells/booklet/.

"*Eliminating an Unnecessary Risk: Abandoned Wells and Cisterns*" can be downloaded at www.dnr.mo.gov/geology/geosrv/wellhd/AbanWell.pdf.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Fluorescent Bulbs

Many businesses use fluorescent lights. Fluorescent bulbs contain toxic metals such as mercury, cadmium and lead. Unbroken lamps pose no threat to human health and the environment and may be managed as a universal waste. However, when fluorescent bulbs are broken, people may be exposed to toxic levels of mercury vapor and other metals which can be easily inhaled.

The Missouri Department of Natural Resources encourages prudent lamp recycling to safeguard human health and to limit the amounts of toxic heavy metals entering the environment.

If your business generates one or two lamps infrequently, and you are a conditionally exempt small quantity generator of hazardous waste, you may dispose of these in a Missouri sanitary landfill. You will need to check to see if the sanitary landfill will accept them. Before disposal, place the lamp into the box the replacement lamp came in, put the box into a plastic bag and secure the bag at the top before placing it into the dumpster. These precautions will help keep the bulb from breaking right away and will help protect you and the trash hauler.

To better protect the environment, the department encourages you to send your lamps to a certified recycler.

Non-hazardous Lamps

If you know your fluorescent lamps are non-hazardous you may send them to a Missouri sanitary landfill or to a lamp recycler. You should contact the landfill operator for permission before disposal. The landfill operator can refuse to accept the waste. The landfill may require a special waste disposal request before accepting the material.

Lamps Sent for Recycling

Businesses in Missouri may send their **unbroken** lamps to a recycler in Missouri that has a resource recovery certification from the department or to an out-of-state recycler. If unbroken lamps are sent for recycling, you do not need to use a licensed hazardous waste transporter in Missouri. You may use a hazardous waste manifest or other shipping papers to record and track your shipments of unbroken lamps.

Hazardous **unbroken** lamps sent for recycling, need to be handled as universal waste. In general, the following practices should be observed:

- Label containers with the words "Universal Waste-Mercury-Containing Lamp(s)", "Waste Mercury-Containing Lamp(s)," or "Used Mercury-Containing Lamp(s)";
- Do not store waste for more than one year.
- Train employees on proper handling and emergency procedures;
- Ship the bulbs per Department of Transportation requirements.

If you intend to send hazardous lamps to an out-of-state recycler, you should contact the environmental agencies in the states through which the lamps will travel for their state requirements. Other states may require use of a licensed hazardous waste transporter and a manifest for shipments to a recycler even though Missouri does not.

Hazardous Lamps

Your fluorescent bulbs are subject to hazardous waste regulations if:

1. They are broken, **or**
2. They are identified as hazardous and are sent to a facility for treatment, storage or disposal. (See the *Hazardous Waste* guide sheet for more information.)

There are two ways to determine if lamps are hazardous.

1. **Test the waste.** The test for determining the toxicity of fluorescent lamps is the toxicity characteristic leaching procedure (TCLP). If the level of any metal is at or above the acceptable level, the lamps are "hazardous waste." Acceptable levels are published in the Code of Federal Regulations as follows:
 - Mercury - 0.2 milligrams per liter (mg/l)
 - Cadmium - 1 mg/l
 - Lead - 5 mg/l
2. **Apply knowledge** of the hazardous characteristic. Data from lamp manufacturers shows that traditional fluorescent lamps are likely to be hazardous waste. If you wish, you may assume the lamps are hazardous to avoid the costs of testing. However, your disposal firm may require test results before taking your lamps.

The hazardous waste regulations you must meet depend on how much waste you generate. It may be helpful to know that 350 of the standard four-foot long lamps weigh about 220 pounds. If you have over 220 pounds of hazardous waste in a month or at any one time you are regulated as a small quantity generator. See the *Hazardous Waste* guide sheet for more information.

Low-mercury lamps are available. Ask your lamp supplier for information.

Remember

- Fluorescent bulbs may be hazardous waste.
- Unbroken fluorescent bulbs can be sent to a bulb recycler.
- Do not break fluorescent bulbs.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of waste can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Purchase low-mercury bulbs.
- ✓ Protect bulbs from breakage.
- ✓ Recycle bulbs.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Fueling Activities

Marina fuel spills can be a source of pollution in marina waters, can be a fire safety hazard and can cause deterioration of docks, boat hulls, woodwork and paint. Small spills can occur from overfilling boat fuel tanks. Larger less frequent spills can occur when fuel is being unloaded from the transport into the tanks and the tanker's hoses are disconnected. In either situation, a release into the environment at a marina can have immediate and long-term effects and may incur serious liability for the marina owner or operator.

The best way to prevent fuel spills at marinas is to locate and design fueling stations so spills can be contained and cleaned up quickly and easily. Equip fuel hoses with automatic shut-off nozzles. Remove old-style fuel nozzle triggers that can hold the nozzle open and allow it to be left unattended. Install a sump box under the fuel dispenser to catch any drips or leaks. Provide personal watercraft (PWC) fueling floats to stabilize PWC during fueling operations. Have a supply of fuel/oil absorbents available at the fuel dock for use in case of spills or leaks. Post signs, with easy-to-follow instructions, that explain proper fueling, spill prevention and spill reporting procedures. Make sure fuel storage tanks comply with current environmental regulations (see the *Petroleum Storage Tanks* and *Air Quality Permits* guide sheets in this booklet). Install automatic shut off valves on fuel pipelines.

Proper operation and regularly scheduled preventive maintenance of the fuel storage and delivery system is an excellent way to prevent fuel loss into the environment. Prevention steps can be much less costly than cleanup costs and fines levied for spills. Check fuel nozzles for signs of wear. Take extra care when changing fuel filters at the dispenser. A typical fuel filter can contain up to one quart of fuel. Place a container under the fuel filter area before loosening it. The container should be large enough to contain all the liquid in the filter, plus the filter itself.

Keep the sump box clean; inspect it monthly for any fuel. Determine the source of any leaks you may find and make repairs. Check the integrity of the sump box annually. Visually check piping from tanks out to the fuel dock. Make sure it is in good condition. Pay special attention to flexible piping and joints.

Close the storm valve on secondary containment when unloading fuel into above ground storage tanks. When tank refill is complete have the transport driver walk the hose back to the secondary containment or spill bucket. Do not allow driver to disconnect both ends of the hose and allow the fuel to escape into the environment.

Marina personnel should be trained in spill prevention, containment, control and clean-up procedures. A spill prevention, control, and countermeasures (SPCC) plan is a valuable first line of defense against petroleum pollution at any marina. It is a regulatory requirement for some marinas with above ground storage tanks (see *Petroleum Storage Tanks* guide in this booklet).

Remember

- Fuel spills at marinas can have immediate and serious environmental impact.
- Spills or overfills may occur during tank filling or dispensing.
- Special care should be taken to inspect piping and joints for leaks.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Avoid over filling fuel tanks.
- ✓ Provide doughnuts or small petroleum pads to patrons to catch fuel splashback while refueling.
- ✓ Place portable gas cans in an oil-absorbent lined drip pan when filling.
- ✓ Place an appropriate absorbent boom in the water between the dock and the boat to collect drips and spills.
- ✓ Ensure secondary containment valves are shut except when draining storm water.
- ✓ Inspect fuel storage tanks and all exposed piping weekly. Look for small drips and leaks and repair or replace immediately.
- ✓ Have absorbents available in case of leaks or spills.
- ✓ Make sure catch basins are kept clean so they function as intended.
- ✓ Install emergency shut off valves in piping runs.
- ✓ Make sure overfill devices are working properly on both tanks and dispenser nozzles.
- ✓ Install sumps at dispenser islands.
- ✓ Use a catch pan when changing filters.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Hazardous Waste

Most marinas generate hazardous waste. Typical hazardous wastes include solvents and paints. It is very important that you find out whether your wastes are hazardous and that you follow the law when managing the wastes.

What is a Hazardous Waste?

A waste is a material that you no longer use and will discard. It can be a solid, liquid or gas. A waste is hazardous if it has properties that could be dangerous to human health and the environment.

It is **your** responsibility to find out whether your waste is hazardous. A waste is hazardous if:

- It is listed as a hazardous waste in the federal regulations;
- It exhibits a hazardous characteristic; It is a hazardous waste by Missouri law; or
- It is a mixture of a listed hazardous waste and any other waste.

Listed Hazardous Waste

The federal government publishes lists of hazardous wastes. There are four different lists: the F list, the K list, the P list and the U list. Wastes that are on the P list are called "acutely hazardous" and are regulated more strictly than the other types.

Characteristic Hazardous Waste

Some wastes that are not on the lists may still be regulated hazardous wastes because they have characteristics that make them hazardous. There are four characteristics:

- **Ignitable** - A waste with a flashpoint of less than 140° F, or solids that catch fire easily and burn so rapidly they create a hazard. Some solvents are ignitable.
- **Corrosive** - A waste with a pH less than or equal to 2.0 or greater than or equal to 12.5. An example is battery acid.
- **Reactive** - Wastes that are normally unstable, react violently with water, can explode or release poisonous gases.
- **Toxic** - Wastes with high concentrations of certain organic chemicals, heavy metals or pesticides when tested by the toxicity characteristic leaching procedure (TCLP). Federal regulations contain a list of toxic chemicals. An example is lead.

Missouri-specific Hazardous Waste

An individual state can regulate wastes as hazardous even if they are not on the federal list.

Mixed Waste

If you mix any waste with a waste that is on the F, P, K or U list, all of it is hazardous, even if there is only a very small amount of listed hazardous waste in the mixture. For example, a cup of waste toluene placed in with 55 gallons of water, produces a little over 55 gallons of hazardous waste.

Is Your Waste Hazardous?

To find out if your waste is hazardous, check to see if it is on the lists of hazardous wastes (federal or state). If it is not, you need to find out if it exhibits one or more of the hazardous characteristics. Check the material safety data sheet (MSDS) or contact your supplier for information. The manufacturer of your chemicals and solvents may be able to tell you whether the used material is hazardous waste. If you can not find the information another way, you will need to test your waste.

If you are unsure if your waste is hazardous, you will need to have it tested in a laboratory using the TLCP. Many laboratories can do this test. Check your phone directory or ask your trade association for suggestions. Contact the Department of Natural Resources at 1-800-361-4827 for help with this.

Managing Hazardous Wastes

There are very specific requirements for managing hazardous waste from your business. The requirements you must meet depend on what and how much waste you generate. You need to know how much acutely hazardous waste (P-listed) and non-acute hazardous waste you generate each month. You also need to know how much of each of these types of waste you accumulate at any one time.

Use the following information to determine your generator status.

What Type of Generator Are You?

There are three types of generators: large quantity generator (LQG), small quantity generator (SQG) and conditionally exempt small quantity generator (CESQG). Here are some general guidelines to help you decide what type of generator you are:

If you generate in one month or accumulate at any one time:

- More than 1 kg (2.2 pounds) of acutely hazardous waste you are an LQG.
- 1,000 kg (2,200 pounds) or more of non-acute hazardous waste you are an LQG.
- More than 100 kg (about 220 pounds), but less than 1,000 kg (2,200 pounds) of non-acute hazardous waste AND less than 1 kg of acutely hazardous waste you are an SQG.
- No more than 100 kg (220 pounds) of non-acute hazardous waste AND less than 1 kg of acutely hazardous waste you are a CESQG.
- In Missouri, anyone generating one gram or more of dioxin waste (2,3,7,8-tetrachlorodibenzo-p-dioxin) is an LQG.

If you are an SQG or LQG you must register with the department and get a generator identification number. You also must follow regulations on storage, transport, record-keeping and reporting. Call the department for more information.

Note: The federal requirements for hazardous waste can be found in the *Code of Federal Regulations*, Title 40, Part 260 through Part 280 (40 CFR 260-280). The Missouri Hazardous Waste Law is in the *Revised Statutes of Missouri* (RSMo), Sections 260.350-260.552. The hazardous waste rules are in the *Code of State Regulations*, Title 10, Division 25 (10 CSR 25). To get information on the regulations, call the Missouri Department of Natural Resources at 1-800-361-4827.

Remember

- You are responsible for determining if your waste is hazardous.
- You will need to register as a generator if you are a SQG or a LQG.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Hull Repair, Cleaning, and Maintenance

Hull maintenance is an important task at some marinas. The way it is done and the materials used impact the environment and your operating costs.

Boat Cleaning

Boat cleaning activities in the slip or dockside can present water quality problems. Many products used for cleaning may be harmful to the marine environment. Less toxic substitutes such as phosphate-free and biodegradable soaps are now readily available. More frequent cleaning with just fresh water using a soft, non-abrasive sponge can minimize marine growth and prolong the life of the hull coatings.

Aside from routine boat maintenance, it is recommended that these activities be scheduled during the boating off-season. This allows the boat to be removed from the water and activities to occur in a more suitable work area location. Under no circumstances should in-the-water hull scraping and paint removal activities be allowed.

Paint Removal – Mechanical Removal

Hull maintenance activity at your marina may involve paint removal. There are a number of alternatives to the commonly used chemical strippers. These alternatives may be less toxic as well as less expensive. Mechanical sanders and scrapers, equipped with vacuums, are effective at removing paint in a way that minimizes debris and residue that might be carried into the water. Abrasive blasting, using sand, plastic, metal and cryogenic media, can be used to remove paint. High pressure water jet stripping can be used. The water used by the water jet stripper can be reused. Any debris or residue from these processes must be collected for proper disposal. Some boat paints are toxic due to heavy metals. Contact the manufacturer for information on the paint.

Paint Removal – Chemical Stripping

Chemical strippers can be very hazardous. You should consider using the least hazardous chemical stripper that will do the job. An effort should be made to use as little as possible. Normally, waste from chemical paint stripping is hazardous waste. To reduce the amount of stripper that needs to be purchased and then disposed of, you should consider using a still to recycle the solvent. See the guide sheets on *Solvents* and *Hazardous Waste* for more information.

Painting

Hull paints can contain metals (such as tin and copper), pesticides and volatile organic compounds (VOCs), all of which are toxic to marine life. In addition, paints and solvents release VOCs into the air, which are harmful to humans when inhaled. Waste paint and solvents may be hazardous waste.

High volume, low pressure (HVLP) painting equipment can reduce paint emissions as well as improve paint application and minimize cost. Air-assisted airless is an environmentally sound

alternative to high-pressure spray. Make sure your operators are properly trained. This will reduce paint emissions and cost. Also, please consider using the least toxic and hazardous paint available that will do the job.

Fiberglass Repair

You might occasionally need to repair a fiberglass boat. Make sure any debris or residue is collected for proper disposal. Some of the material used for the patch is hazardous. You need to read the handling instructions carefully. Make sure any left over material is properly handled. Contact the Environmental Assistance Office if you have any questions on proper disposal.

Remember

- Use the least hazardous and toxic substance that will get the job done.
- Keep debris and residue from the water. Properly handle and dispose of them.
- Prohibit uncontained paint removal.
- Properly dispose of paints and solvents.
- Properly dispose of the components of fiberglass patches.

Pollution Prevention Options

Preventing pollution can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ When possible, schedule activities during off-season.
- ✓ Properly design the work area to minimize the potential for spills.
- ✓ Storage areas should have restricted access and provide for the containment of spills and leaks.
- ✓ Containers should be in good condition.
- ✓ Work should occur in an enclosed work area to minimize contaminated runoff.
- ✓ Minimize work done in the water.
- ✓ Vessel maintenance areas should have an impervious surface, and where practical, a roof. Sheltering the area will prevent storm water from carrying debris into the surface waters.
- ✓ If asphalt or cement is not practical, perform work over filter fabric or over canvas or plastic tarps.
- ✓ Post signs describing the practices that boat owners must follow.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Lead-Acid Batteries

Lead-acid batteries from marine engines and trolling motors contain materials that pose a risk to people and the environment. These batteries contain sulfuric acid, lead and other materials that can be hazardous.

Used batteries are banned from sanitary landfills in Missouri. Do not put them in your trash or dumpster. Non-leaking batteries need to be handled in one of three ways.

1) Recycling Program for Lead-Acid Batteries

The current recycling program for batteries is extremely successful and the requirements are not stringent, so the waste batteries will probably be handled under this program. This program requires battery wholesalers and retailers to accept used batteries from their customers in quantities at least equal to the number of new batteries sold.

No matter how you handle your used batteries, if you sell a battery to someone, you must take their old battery if asked. You must then arrange for those batteries to be recycled. Batteries cannot be stored longer than 90 days unless you get approval from the Missouri Department of Natural Resources.

The law also requires anyone selling batteries at wholesale or retail to post a sign about recycling batteries. The sign has to be four inches by six inches or larger and must say "It is illegal to discard a motor vehicle battery or other lead-acid battery. Recycle your used batteries. State law requires us to accept used motor vehicle batteries, or other lead-acid batteries for recycling, in exchange for new batteries purchased."

2) Universal Waste

Used batteries can be handled as universal waste. This option has more stringent requirements than the recycling option listed above. You must send the batteries to a recycling facility, a resource recovery facility or a permitted lead smelter. See the technical bulletin *Universal Waste* for additional information. It can be found at: www.dnr.mo.gov/oac/pub2058.pdf. If you do not have Internet access, please contact the Environmental Assistance Office to request the document.

3) Hazardous Waste

Used batteries can be handled as hazardous waste. Cracked or leaking batteries must be handled as hazardous waste. This option is normally the most costly and has the most stringent requirements. See the *Hazardous Waste* guide sheet if you handle your used batteries as hazardous waste.

Storage of used batteries

If you store batteries, it must be in a way that protects human health and the environment. The safe storage of batteries begins with a suitable location. Batteries should be stored indoors or under cover to keep them dry and to prevent damage to the casings caused by freezing and thawing. The storage location should not be where the batteries can be hit or run over.

Batteries should not be stored near combustibles, such as gasoline, and the storage area needs to be well ventilated. Precautions should be taken to contain spills. One way is to store batteries on or above a sealed concrete floor with a curb. Storage of batteries outdoors may require a storm water permit from the department.

If you are storing batteries, you should have written procedures for handling spills or leaking or cracked batteries. Spills should be neutralized with a material such as agricultural lime, baking soda or a commercial spill kit, and be cleaned up immediately. Cracked or leaking batteries should be placed in a container impervious to acid, such as a five-gallon plastic bucket. Anyone handling the batteries or spilled material should wear protective clothing, gloves and eyewear. An eye wash sink or eye flush kit should be available. (Cracked or leaking batteries need to be handled as hazardous waste.)

Transporting Used Batteries

All used batteries need to meet Department of Transportation (DOT) requirements for transporting hazardous materials. Hazardous waste batteries must be transported using hazardous waste haulers.

Remember

- Do not put batteries in the trash. They cannot go to a landfill.
- If you sell a battery to someone, you must take their old one if they ask.
- If you sell batteries, you must post a sign with specific language about recycling.
- Cracked or leaking batteries are hazardous waste.

Pollution Prevention

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Store batteries where they will not be damaged or frozen.
- ✓ Store batteries in a manner that leaks will be caught and contained.
- ✓ Anchor batteries when transporting.
- ✓ Use long-life batteries.
- ✓ Inspect stored batteries regularly for cracks or leaks before they become a problem.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Mercury Switches

Many boats contain mercury switches. They are located in some light switches, float switches in bilge pumps, auto-pilots and safety-switches for out-board motors. Liquid mercury and mercury vapor are hazardous to both humans and the environment. Once released, mercury cannot be eliminated, it will stay in the environment forever. Removal and proper management of mercury switches is an important part of keeping mercury out of the environment. Also, make sure the mercury containing device does not break when removed from the vehicle. Mercury containing devices that have broken need to be handled as hazardous waste. See the *Hazardous Waste* guide sheet for more information.

Store the unbroken switches in a leak-proof, closed container in a manner that will prevent the capsule from breaking. Label the container "Universal Waste-Mercury Switches", "Waste Mercury Switches" or "Used Mercury Switches". Mark the date the first switch is placed in the container. You have a year to send the switches off for recycling. A hazardous waste transporter will not be required in Missouri.

If you plan to send the mercury switches to a company out-of-state, contact the environmental agencies in the states through which the switches will travel for their state requirements. Other states may have additional transportation requirements.

If the mercury switch cannot be reused, many of the companies that handle fluorescent bulbs also handle other mercury-containing items. We have a list of companies that can handle fluorescent bulbs. This list will usually note when the company also accepts other items. This list, *Fluorescent Bulb Recyclers*, can be found at: www.dnr.mo.gov/oac/pub451.pdf. If you do not have Internet access, please contact the Environmental Assistance Office to request the document.

Remember

- Properly package and label mercury switches.
- Broken mercury switches must be handled as hazardous waste.
- You must send your mercury switches off for recycling within one year from the time they are deemed a waste.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Paint Booth Filters

Used paint booth filters may be hazardous waste. Paint and solvent captured by a filter can cause the used filter to be a hazardous waste depending on the paint and solvents you use and how much you paint.

Usually filters are hazardous because they contain a toxic metal (usually from the paint), they are ignitable (can burst into flames) or they are contaminated with a "listed" hazardous waste (often from spraying solvent into the filter when cleaning spray guns).

To decide if your paint booth filter is hazardous ask yourself the following:

- Does the material safety data sheet (MSDS) show that the paint or other chemicals going into the filter contains toxic metals (particularly cadmium, lead, barium or chromium) or other toxic materials? If the answer is yes, it is very possible that your filters are hazardous waste. You can assume your filters are hazardous or you can do testing.
- Can your supplier or manufacturer provide information to you that says your paints or other chemicals going into the filters contain no toxic material? If the answer is no, you should find out the levels from them or do testing.
- Is the paint or other chemicals going into the filters a "listed" hazardous waste? If the answer is yes, the used filters will be hazardous waste. Listed hazardous waste solvents include trichloroethylene, toluene, xylene, acetone, methyl ethyl ketone, and methylene chloride.
- Could the used filters spontaneously combust (catch on fire without anyone or anything lighting them)? If the answer is yes, the filters are hazardous waste.

Some people dip their used filters in water before storing them to prevent fires. Others spray them with water. If the filters cannot catch fire, they are not ignitable hazardous waste. They could still be hazardous waste for another reason (toxic or listed hazardous waste contamination). If your filter contains a listed hazardous waste and you dip it into water, the water you dipped it in becomes hazardous waste.

Testing Paint Booth Filters

To test your paint booth filter, a laboratory will need to measure the flash point, determine if the filter can spontaneously combust and run a toxicity characteristic leaching procedure (TCLP). The TCLP will only need to test for the toxic chemicals that you expect to find in your paint filter.

The list of regulated toxic chemicals is in the *Code of Federal Regulations*, 40 CFR 261.24. Call the Missouri Department of Natural Resources if you need help finding this list.

To find a laboratory to test your filters for hazardous characteristics, check the yellow pages, ask your vendor or check with your trade association. Be sure the filter is full when it is tested.

Once you test the filters, you need to test them again when your process changes, for example if you change paints or solvents.

Managing Hazardous Waste

If your filters are hazardous waste, you will need to figure out how much waste you generate. The regulations you must follow depend on how much waste you generate. A few of the basic requirements are discussed here. See the *Hazardous Waste* and *Hazardous Waste Management* guide sheets for more information.

Properly store and dispose of used filters. During storage in the accumulation area, they need to be in a closed container clearly marked with the words "Hazardous Waste" and the date you first put waste into the container. Be sure you store them in a way that will prevent fires. When the container is moved to the hazardous waste storage area additional requirements will need to be met. The date needs to be changed to the date the container goes to storage and the container needs additional DOT markings and labels.

Anyone transporting your hazardous waste must have a Missouri Hazardous Waste Transporter License. There are several types of facilities that can accept hazardous paint booth filters. Always check to be sure that the facility receiving your waste can legally accept it.

To get a list of certified resource recovery facilities (recyclers) or hazardous waste facilities in Missouri, contact the department at 1-800-361-4827.

Remember

- Paint booth filters may be hazardous waste. You must find out if yours are.
- If you clean your guns by spraying a listed hazardous waste solvent into your paint booth or filter, your filters become hazardous waste. Spray solvent into a container and reuse it.
- If your paint booth filters are hazardous waste, you must follow hazardous waste regulations. See the *Hazardous Waste* guide sheet.
- Store used paint booth filters safely to prevent fires. If you dip them in water, realize that the water may become hazardous waste.
- Use non-hazardous paints and solvents.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Paint Waste

Waste paint may be regulated as hazardous waste. Some paints contain metals such as lead, cadmium, barium or chromium that cause the paint to be toxic hazardous waste. Your paint may also be an ignitable waste, which means it will catch on fire at less than 140° F. The temperature at which something catches on fire is called the flash point.

The material safety data sheet (MSDS) for the paint should list the flash point. It should also list toxic metals if they are present in significant amounts. Even if the MSDS does not list any toxic metals, the paint could still be hazardous waste. Check with your supplier or manufacturer.

The regulated levels of toxic metals are:

- Barium 100 mg/l (milligrams per liter)
- Cadmium 1.0 mg/l
- Chromium 5.0 mg/l
- Lead 5.0 mg/l

If the concentration of metals in your paint is at or above these levels, the paint waste is hazardous waste.

If the MSDS, the supplier or some other authority cannot tell you whether the waste paint is hazardous, you will need to have the paint tested before disposal. The test for toxic metals is called the toxicity characteristic leaching procedure (TCLP). See the *Hazardous Waste* guide for more information. You need to test a representative sample of the waste. Be sure to test again if the paint formulation changes.

Keep paint waste separate from solvent waste. If you mix paint waste with a listed hazardous waste solvent, the mixture will be hazardous waste. Some common hazardous waste solvents include methyl ethyl ketone, toluene, trichlorethylene, methylene chloride, xylene and acetone.

Try to avoid having waste paint. Computerized mixing systems can help assure accurate color matching. Using the smallest paint cup possible reduces the amount of paint left in the cup. If you have off-spec paint, ask your supplier to take it back.

Try to use up paint rather than disposing of it. Some shops mix small amounts of different colors to use as an undercoat.

Disposing of Hazardous Paint Waste

If your waste paint is a hazardous waste, you need to figure out how much you generate. The rules you must follow depend on how much waste you generate. During storage in the accumulation area it needs to be in a closed container labeled with the words "Hazardous Waste" and the date waste was first placed in the container. When the container is moved to the storage area additional requirements will need to be met. The date needs to be changed to the date the container goes to storage and the container will need additional DOT markings and labels.

Anyone picking up your hazardous waste for disposal or recycling must have a Missouri Hazardous Waste Transporter License. You may need a generator identification number and you may have to complete a hazardous waste manifest. See the *Hazardous Waste Management* guide sheet for more information.

There are several types of facilities that can accept hazardous paint waste. Always check to be sure that the facility receiving your waste can legally accept it. To get a list of certified resource recovery facilities (recyclers) or hazardous waste disposal facilities in Missouri, contact the Environmental Assistance Office at 1-800-361-4827.

Disposing of Non-hazardous Paint Waste

If your paint waste is not a hazardous waste, you can dispose of it with your trash if the paint is dry. Landfills in Missouri cannot accept liquids. Check with your landfill to see if they will accept the waste.

To dry the non-hazardous paint, mix absorbent material into it to soak up all the liquid. Kitty litter and sawdust are good absorbents that are inexpensive.

You may have heard that you can dry the paint by letting it evaporate. This is never a good idea and may be illegal. Allowing paint to evaporate like this causes air pollution and poses a risk to anyone around the drying paint. Using an absorbent to dry it is safer and is inexpensive.

Do not put paint or any other chemicals down the drain unless you have permission from the wastewater treatment plant.

Never pour paint or any other waste onto the ground. Doing so can seriously harm you and the environment. Also, there are penalties for illegally disposing of waste.

Remember

- Your paint may be a hazardous waste. You must find out if it is.
- Keep paint-waste separate from other wastes.
- Be sure that anyone taking your hazardous waste is legally able to do so.
- Never pour paint or any other wastes onto the ground.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Ask your vendor for paints that do not generate hazardous waste.
- ✓ Mix only the amount of paint needed. Use all the paint you mix.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Painting

Marinas mix and apply primers, paint and topcoats. The way these tasks are done will affect how much paint and other materials you use and how much waste you make. It is good for the environment and good for business to reduce the amount of these chemicals used and to reduce waste.

Paints, primers and topcoats (paints) usually contain chemicals that cause air pollution. Many of them are also hazardous wastes. If you use less of these coatings, less air pollution is made. This will help the environment and employee health. It can also reduce the number of environmental regulations you have to follow.

Several things affect the amounts of paint used and waste made during surface coating. The skill of the operator, the type of coating applied and the type of spray equipment used are all factors. Differences caused by the painter's skill and technique are often greater than the type of coating or gun used. Investing in training for the painters in your shop can help you save money as well as ensuring a good quality product.

Here are some ideas for reducing the amount of paints used and the amount of waste made:

- Use the correct gun setup for the coating to be used and for the size of the area to be covered. Gun settings include fluid tip size, flow rate setting, the air cap type and pressure (psi), and the paint cup psi in pressure cup systems.
- Keep records of the gun type and settings for specific jobs to reduce variations.
- Use paints with low lead, cadmium and chromium content. Using materials with these or other toxic metals will usually make your paint filters hazardous waste. Check the material safety data sheet (MSDS) or ask your supplier for non-hazardous paints.
- Use neutral color primers and sealers to allow easy topcoat coverage.
- Mix only the amount of paint needed. As little as one excess pint per day equals approximately \$3,000 added cost per year.
- Keep records of the volumes of paint needed for specific jobs. Estimate the quantity of paint mixed based on these records.
- Apply only the number of coats needed for adequate coverage.
- Use high efficiency spray equipment. Standard spray guns can waste as much as 80 percent of the paint used. High-efficiency spray guns such as high-volume, low- pressure (HVLP) and electrostatic guns can reduce overspray by as much as 75 percent. These guns still depend on the operator skill level and technique. Proper training for their use is critical.
- Consider installing a computerized mixing system. These systems can accurately mix paint formulas down to very small quantities, eliminating mismatches and reducing the amounts of wasted paint. Payback for such systems can be less than one year, depending on the volume of painting done.

Remember

- Using only the amount of paint needed saves money and protects the environment.
- The skill of the painter is key to reducing paint used and paint waste. Other factors are type of paint and painting equipment.
- Use non-hazardous primers, paints and topcoats whenever possible.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Parts Washers

Various types of parts washers are available for removing dirt and lubricants. Most systems use either solvent or water-based cleaners. Depending on the cleaner used and the items being cleaned, the waste from parts washers may be hazardous.

Solvent Washers

Many marinas use solvents for cleaning parts. Some solvents evaporate readily and can cause air pollution problems. For this reason the use of certain solvents is restricted in some areas, such as St. Louis and Kansas City. Check with your local air pollution control office or the Missouri Department of Natural Resources for any special requirements for your solvents.

Some of these solvents are hazardous waste. If you do not know whether your solvent is a hazardous waste, check the material safety data sheet (MSDS) or ask your supplier. You can get an MSDS from the manufacturer of the solvent. Even if the solvent is not hazardous, the used solvent could be hazardous because of contamination from the parts you clean. Your supplier may be able to provide information on typical contaminants, or you may need to have the waste solvent tested. It is your responsibility to make sure the solvent is handled properly and the paperwork is filled out correctly.

Some shops use solvent-distillation units, sometimes called "stills." These units remove contaminants so you can reuse the solvent. You must get a Resource Recovery Certification from the department if you recycle more than 2,200 lbs. of hazardous waste in a month. If you recycle smaller amounts, you need to notify us of your recycling activities. The sludge, used filters and still bottoms from these units are regulated as hazardous waste if the solvent is on the hazardous waste list (F001 – F005). If the solvent is only hazardous because of its characteristics (ignitable), then the used filters and still bottoms will only be hazardous if their characteristics (ignitable) are hazardous.

Water-Based Washers

Many water-based parts washers are available. Typically, these are closed units that use very hot water and detergents with rust inhibitors. They work like home dishwashers. The units are often designed to filter oil and impurities from the water during operation.

If you have or are thinking of using this type of washer, you must still be concerned about hazardous waste issues. Check the MSDS or contact the supplier to learn if the detergent is regulated as a hazardous waste. Also, just as with solvent units, the contamination from the parts you are cleaning could cause the waste to be hazardous. You may need to have the wastewater, filters or sludge tested to determine if they are hazardous.

If you plan to put wastewater from your parts washer down the drain, contact your sewer system personnel to make sure it is okay with them. If your wastewater is treated by an on-site system, such as a lagoon or septic tank, you cannot put wastewater from your business operations down the drain. You will need to contain your wastewater and dispose of it at a facility able to accept it. For this reason, it may be more costly to use a water-based parts cleaning system if

your business is on a septic system. See the *Wastewater* guide sheet for more information. Do not let untreated wastewater drain out on the ground or to any body of water.

Remember

- It is your responsibility to make sure the waste solvent is handled properly.
- Solvents or detergents used in parts washers may be regulated as hazardous waste.
- Contaminants from dirty parts can cause waste solvent or wastewater to be hazardous.
- You must notify the department if you recycle hazardous waste (such as some solvents) on-site. If you recycle over 2,200 lbs. in a month, you must get a Resource Recovery Certification.
- Check with your sewer plant to see if it is okay to pour wastewater from your parts cleaner down the drain.
- Never discharge wastewater onto the ground, into storm sewers or into any body of water.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Look for alternatives to hazardous solvents such as water-based parts washers.
- ✓ Close the lid on your parts washer and turn off the spray nozzle when not in use. This will decrease evaporation of solvent.
- ✓ Consider a solvent distillation unit ("still"). These units can extend the life of the solvent, saving raw material expense and hazardous waste disposal costs.
- ✓ Before exchanging solvent, make sure it is too dirty for reuse. Use slightly dirty solvent for initial rinsing of parts and clean solvent for final cleaning.
- ✓ Maintain parts washers. Check to make sure seals are tight and there are no leaks.
- ✓ Drain parts before removing them from the solvent sink or parts washer.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Petroleum Storage Tanks

Some marinas have storage tanks containing oil or fuel. These tanks have the potential for leaking and spilling oil or fuel, causing harm to the environment. Storage tanks, depending on size, usage or type, are regulated by several agencies.

Aboveground Storage Tanks (ASTs)

Federal law requires a spill prevention control and countermeasure (SPCC) plan if an oil, used oil or petroleum storage tank is located where a spill could contaminate waters of the state (storm water drainage ditch, stream, lake, river or wetland). A SPCC plan is required if your marina has:

- A total aboveground storage capacity (of containers 55 gallons or greater) over 1,320 gallons, or
- A total underground storage capacity over 42,000 gallons that is not regulated by UST standards.

Required elements of a SPCC plan include: steps your marina takes to prevent spills, how spills will be contained, and how spilled oil or fuel will be removed and disposed of. The storage tanks must have some form of secondary containment. A registered professional engineer must certify the SPCC plan.

The Missouri Department of Agriculture regulates aboveground petroleum storage tanks located at resale fueling stations or bulk terminals. Businesses that include these operations can contact the Department of Agriculture at:

Missouri Department of Agriculture
Division of Weights and Measures
P.O. Box 630
Jefferson City, MO 65102
(573) 751-4278

Underground Storage Tanks (USTs)

Marinas with underground storage tanks (USTs) larger than 110 gallons must register the tanks with the Missouri Department of Natural Resources. This applies whether or not the tanks are in use, unless they were taken out of service before Jan. 1, 1974. There are performance standards in Missouri that all USTs must meet to prevent leaks and spills. These requirements include spill and overfill protection as well as approved methods of corrosion protection and release detection for both the tanks and piping. Older tanks, those installed prior to Dec. 22, 1988, were required to meet these requirements by Dec. 22, 1998 or be properly closed. Tanks installed since Dec. 22, 1988 are required to meet these standards when installed. Heating oil tanks are exempt from these regulations. Marina's located in metropolitan areas of the state may also be required to have stage I vapor recovery equipment (see the *Air Quality Permits* guide sheet).

If you are planning to install a new UST, you must notify the department at least 30 days before beginning installation. For details about installation requirements see Technical Bulletin #1298 on the web at www.dnr.mo.gov/oac/pub1298.pdf or get a copy by calling the department at 1-800-361-4827.

If you are planning to take a UST out of service, temporarily or permanently, or you want to use it for something besides petroleum products, contact the department for closure or site assessment requirements.

Financial Responsibility

Petroleum underground storage tank owners and operators are required to demonstrate financial responsibility coverage (funds available to pay for cleanup) in case environmental damage is caused by releases from their tanks. Several options are available for demonstrating financial responsibility. One option, insurance, is available through the state Petroleum Storage Tank Insurance Fund (PSTIF). The insurance is available for both ASTs and USTs. For more information contact PSTIF at (573) 522-2352 or the fund administrator, Williams & Company, at 1-800-765-2765.

Spills

Notify the department if you suspect a release from your UST. Also, report to the department any spills or overfill of petroleum greater than 25 gallons. Spills and overfills must be immediately contained and cleaned up. The department's Environmental Emergency Response hotline number is (573) 634-2436. You must call as soon as possible within 24 hours.

Remember

- Underground storage tanks larger than 110 gallons must be registered with the department, even if not in use.
- ASTs may require spill prevention, control and countermeasure (SPCC) plans
- Spills or releases must be reported to the department as soon as possible within 24 hours.
- USTs must comply with the 1998 upgrades or the new performance standards.
- USTs must have financial responsibility coverage.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Prevent overfilling and spilling. Clean up spills as soon as possible
- ✓ Place tanks where leaks can be easily contained without entering the environment.
- ✓ Inspect secondary containment annually. Make sure it is liquid tight.
- ✓ Maintain appropriate spill containment equipment. Train employees on proper usage.
- ✓ Perform annual operational checks on solenoid valves.
- ✓ Label tank contents to prevent mixing.
- ✓ Properly maintain tanks to prevent corrosion.
- ✓ Inspect tanks and exposed piping weekly for leaks and spills. Make needed repairs immediately.
- ✓ Close out unused or out-of-service USTs in accordance with the department's regulations.

Additional Resources

See the Hazardous Waste Program Tanks Section Webpage at www.dnr.mo.gov/alpd/hwp/tanks.htm for more detailed storage tank information.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Shop Towels

Discarded shop towels or rags -- either cloth or paper -- may be contaminated with hazardous wastes. If they are, the towels or rags may be hazardous waste.

Listed hazardous wastes include solvents such as methyl ethyl ketone, toluene and xylene. A waste can also be hazardous if it is toxic, ignitable, reactive or corrosive. This type of waste is called a characteristic hazardous waste. See the *Hazardous Waste* guide sheet for more information on what wastes are hazardous.

Any waste that is mixed with a listed hazardous waste becomes a hazardous waste. Towels with a listed hazardous waste on them become hazardous wastes themselves when you discard them. The towels could also be characteristic hazardous waste, particularly if they are contaminated with metals like lead or chromium, or if they can burst into flames.

The best way to deal with this issue is to prevent the problem. If you use non-hazardous cleaning solvents, the solvent will not cause the towel to become hazardous.

If used towels or rags are laundered and reused, they are not regulated as a solid waste or as a hazardous waste. You should tell your laundry what chemicals are on the towels and make sure they can handle that type of material.

If you wash your own shop towels, be sure to check with your wastewater treatment plant to find out whether they can accept the wastewater discharge you are putting down the drain. You may need to pretreat your wastewater. Do not launder contaminated shop towels if the wastewater does not go to a treatment plant.

Do not launder towels or rags used to clean up spills of hazardous waste. If you use shop towels to clean up spills of listed hazardous waste, the shop towels are hazardous waste and must be disposed of at a permitted hazardous waste treatment, storage or disposal facility.

If you plan to throw away dirty shop towels or rags, you need to find out whether they are hazardous waste. If the shop towels are hazardous, you must comply with the regulations for management, storage, transport and disposal of hazardous waste.

If your used towels are non-hazardous, you may send them to a sanitary landfill. Landfills cannot accept liquids, so be sure to collect and use any liquid from your shop towels.

Remember that oily or solvent-soaked towels can catch fire easily. Store them safely. Some people spray the rags with water to prevent fires.

Remember

- Shop towels used to clean up spills of listed hazardous waste must be managed as hazardous waste.
- Shop towels contaminated with listed hazardous waste are hazardous waste.
- If dirty shop towels are laundered and reused, they are not waste. Let the laundry know what type of solvents or other materials are on the dirty towels.
- Do not wash your dirty shop towels unless the wastewater goes to a wastewater treatment plant. Check with staff at the treatment plant to be sure it can handle the wastewater.
- If you are throwing away contaminated shop towels, you must find out whether they are hazardous waste and follow the regulations that apply. See guide sheet on *Hazardous Waste*.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of waste can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Use non-hazardous cleaners and solvents.
- ✓ Do not use shop towels to clean up spills of hazardous materials. Use drip pans to prevent spills and appropriate absorbents for cleanup.
- ✓ Use the least amount of solvent needed.
- ✓ Collect and recycle solvents from contaminated shop towels. You can use a wringer to remove the liquid or simply allow the towels to drain over a container. Reuse solvents if possible.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Solid Waste

Marinas generate wastes of all types, from dead fish and fish cleaning wastes to old dock foam to trash. How you handle these wastes can affect both the environment and your bottom line.

Wastes generated at your marina are trade wastes. This kind of waste cannot be burned, buried on-site, or left piled as a means of disposal. It needs to be either recycled or sent to a landfill. Some inert waste, which will not degrade over time, can be used as clean fill. (Please contact the Environmental Assistance Office (EAO) for additional information on clean fill.)

Landfills cannot accept wastes that have visible liquids in them. You may need to add an absorbent material such as sawdust or kitty litter to bulk the waste and eliminate free liquids.

Landfills also do not accept hazardous materials, major appliances, used oil, or car type batteries. Landfills may refuse anything. Make sure they will accept your waste before you send it for disposal.

Fish Waste

Fish waste can create water quality problems at marinas. The waste from fish cleaning should not be disposed of into a marina basin because of the chance of overwhelming the natural ability of the waterbody to take in and decompose it. This can cause foul-smelling conditions that produce too much oxygen in the water. Floating fish parts are also an unattractive addition to the marina property.

Fish cleaning stations provide convenient places for marina patrons to clean fish and dispose of their waste material, and help to keep the rest of the marina clean. Marina managers often find that once a good fish cleaning station is available to fishing patrons, the patrons gladly use it. Gutting fish at a fish cleaning station avoids the mess created on a boat or dock. Non-fishing marina patrons will appreciate not finding fish waste on docks or floating in the water near their boats.

Fish waste can be deposited in trash containers, where it will not hurt the water. Another option is to reuse fish parts as bait. This reduces waste at the marina and provides a usable product, bait.

Composting fish waste is also a good alternative to disposal. Layer sawdust and fish waste with a top layer of sawdust to control odors. This will produce a good landscaping material after a short period of time. The compost can be used in flowerbeds and gardens. The compost should be placed inside a fenced area to discourage wild animals and other pests. Use a concrete floored shed with a roof to prevent liquids from leaking out of the compost. Plans for covered composters used by some Missouri state parks are available by contacting EAO.

The department may regulate composting large amounts of fish waste. Contact EAO to find out what regulations might apply due to composting.

If the fish waste cannot be composted or reused it should be sent to a landfill. Landfills can refuse to accept any wastes, so verify they will accept your fish waste.

Dock Foam

Many lakes have regulations banning the use of unencapsulated expanded polystyrene as flotation material for boat docks. This has resulted in a noticeable generation of expanded polystyrene solid waste on shore, in the woods, and in Missouri's landfills.

Citizen groups, environmental groups, private industry, government agencies and individuals have organized and participated in clean-ups at various lakes. Marinas often play an integral role in these clean-ups, providing a meeting place for the participants, temporary waste storage areas, boats and trucks used to collect and haul the waste, and publicity of the event. This type of publicity shows your neighbors that your marina is a good environmental citizen. The largest portion of the solid waste collected during lake clean-ups is foam.

Waste foam flotation is often waterlogged which makes it heavy, hard to handle and costly to landfill. Management of waterlogged foam flotation can be made easier by drying the foam. Foam has been successfully dried using several creative ways, including stacking in the sun and placing in a car crusher.

Marinas and landowners with foam waste can get rid of the waste by arranging for its hauling with a commercial solid waste handling company. Hopefully, as supplies of foam become more economically attractive to plastic recyclers, a non-landfill alternative will emerge.

Remember

- Landfills cannot accept certain types of waste.
- It is illegal for businesses to burn solid waste for disposal.
- The department may regulate large fish composting areas.

Pollution Prevention Options

Preventing Pollution can save money, protect the environment, and reduce risk to people. Here are some suggestions.

- ✓ Sort waste materials when they are produced to make recycling easier and more productive.
- ✓ Keep outside storage areas neat and develop a regular schedule for taking recyclables to a recycling center.
- ✓ Store solid waste in ways that protect it from rain and prevent vermin breeding.
- ✓ Place waste storage containers away from wells and surface water.
- ✓ Have trashcans conveniently located. Possible locations for trashcans would be near the launch ramp, in the parking lot, on the gas dock, near the restrooms, and other places convenient for your patrons.
- ✓ Recycling receptacles should be placed near the trashcans. Common items to recycle are aluminum, plastic, paper, and glass.
- ✓ Plan to manage your solid wastes in a way that protects the environment.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Solvents

Waste solvents used in paint equipment cleaning and parts washers make up a big part of the hazardous wastes from marinas. You can help protect the environment, protect workers in your shop and save money by reducing the amount of solvent you use and by reusing or recycling your solvent.

Air Pollution from Solvents

Many solvents contain volatile organic compounds (VOCs). These chemicals get into the air and can harm people and the environment. The material safety data sheet (MSDS) provides information on the amount of VOCs contained in the products you buy. Always try to use the material with the lowest percentage of VOCs possible. There are regulations about solvent metal cleaning for both the St. Louis and Kansas City areas.

Missouri has rules to protect air quality. The types of rules that apply to your shop depend on the type and quantity of paints and solvents you use, as well as the size of your operation

Waste Solvent

Many waste solvents are hazardous wastes. Some used solvents and still bottoms are on a list of hazardous wastes called the F list. Some unused solvents are on the U list.

Common hazardous waste solvents include trichloroethylene, tetrachloroethylene (perc), methylene chloride, xylene, acetone, methyl ethyl ketone and toluene.

Some used solvents are hazardous because they are ignitable, toxic, reactive or corrosive. If the waste solvent has a flash point of less than 140° F it is an ignitable hazardous waste. The flash point is the temperature at which the solvent will catch on fire.

Waste solvent should be reused, recycled on-site, recycled off-site or, as a last resort, disposed of as a hazardous waste. See the hazardous waste guide sheet for more information.

Solvent Recycling

Most on-site recycling of solvent is done with a distillation unit called a still. Used solvent is put in the still and heated to the boiling point. The solvent vapor is then cooled, producing nearly pure solvent. (Filters on parts washers also extend the life of the solvent. While this process is not considered "recycling," it can help protect the environment and can save money.) The department needs to be notified of solvent recycling activities. Contact the Environmental Assistance Office for specific requirements.

Reducing Solvent Waste

Solvents can be expensive to purchase and to dispose. It makes good sense to try to reduce the amount of solvent you use. Often, the solvent that you use can be reused or recycled, which means you can purchase less new solvent. Reducing the amount of solvent used saves money and protects the environment.

Here are some ideas for reducing solvent use:

- Keep solvent containers, parts washers and solvent sinks closed. Any solvent that evaporates at your shop is solvent you paid for and cannot use. Some people estimate that as much as 40 percent of solvents are lost due to evaporation, equipment leaks, spills or inappropriate use.
- Set up and follow a maintenance schedule for equipment. This can prevent leaks.
- Check regularly for leaks, drips and spills. Repair leaks and clean up spills right away.
- Schedule paint jobs to reduce the need to clean between jobs.
- Use slightly dirty solvent for the first rinse of equipment.
- Scrape the leftover paint out of the paint cup before you rinse it.
- Use the smallest spray cup that will work so you will not have a lot of leftover paint. You also will not need to use as much solvent to clean a small spray cup.
- When you clean spray guns, spray the solvent into an enclosed area or container so it can be captured and recovered.
- Think about buying or leasing an automatic paint gun washer. These systems work like household dishwashers. They can reduce employee time spent cleaning, reduce solvent evaporation and reduce exposure hazards.
- Clean guns and nozzles immediately after use. This saves time and solvent.
- Keep solvent containers, parts washers and solvent sinks closed. This is so important the list begins and ends with it.

Remember

- Your solvent may be hazardous waste.
- Ask your supplier if non-hazardous solvents are available.
- Solvent that evaporates is solvent you paid for and cannot use. Keep containers tightly closed and in good condition.
- Use the solvent with the lowest VOC content possible.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Spills

Spills can hurt you and your employees. They can also cause environmental damage at your facility. Many spills are caused through improper storage and management of fluids. Spilled materials can pollute soils, ground water, surface waters and wetlands, affect air quality and harm people and wildlife.

Prevent spills

1. Store all materials in closed and labeled containers to prevent spills, evaporation and mismanagement from lack of identification.
2. Check container content level before filling.
3. Check container for leakage. Use only containers in good condition.
4. Use containers that are compatible with the contents.
5. Store containers so that they are not in contact with accumulated liquids.
6. Use storm drain covers to keep spilled material from entering storm water drains.
7. Train staff in safe drum and material handling equipment use.
8. Do not stack drums or other waste-fluid containers.
9. The U.S. Environmental Protection Agency (EPA) has additional requirements for large quantities of petroleum products.

Before a spill occurs

You should know what to do before it happens. We suggest you do the following before a spill occurs:

1. Have a procedure for handling spills:
 - ✓ Train your employees on how to quickly respond to different kinds of spills using the proper emergency equipment and absorbents.
2. Have spill equipment on hand. Make sure it has been tested and maintained.
 - ✓ Personal protection equipment such as gloves.
 - ✓ Absorbent material for soaking up oils and solvents: Industrial spill clean-up products such as pads, booms and absorbents such as oil dry, absorbent blankets, kitty litter, etc.
 - ✓ Containers to hold spilled waste: drip-pans, pails and drums.
 - ✓ Shovels and scoops to clean-up absorbents for disposal into drums.
3. Practice emergency scenarios.

In case of a spill

1. Clean up spills right away!
2. Place absorbent materials on the spill. Containerize used absorbent materials and dispose of them properly.
3. Use fire extinguisher as required.
4. Materials such as sand, dirt and booms can be used to divert and contain spills on your property.
5. Place recaptured and containerized liquids in some type of secondary containment such as drums, livestock water troughs or children's pools. Until the liquids can be better containerized, cover to avoid further loss by the wind or rainwater.
6. Do not use water to dilute spills or wash spills into storm or sanitary sewers or septic systems. Spills of any kind need to be kept out of the waters of the state. These waters include ditches, wetlands, creeks (including "dry" creeks), groundwater and surface water.
7. Spills of hazardous waste need to be handled as hazardous waste. Gasoline and diesel fuel may be considered hazardous waste. The cleanup of used oil spills is tied to the amount that needs to be cleaned up.

Report it!

Any **petroleum product** releases greater than 50 gallons (or 25 gallons for underground storage tank spills) must be reported to the Missouri Department of Natural Resources, (573) 634-2436, and the National Response Center, 1-800-424-8802, at the earliest practical moment after discovery. If the amount spilled is unknown, then you need to assume more than the reportable quantity was spilled, and the spill needs to be reported.

Remember

- Use good work practices to prevent spills.
- Prepare for spills.
- Cleanup spills.
- Report spills as needed.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people.

- ✓ Use good work practices to prevent spills.
- ✓ Determine the best way to handle a spill, minimizing the amount of waste generated.
- ✓ Identify where floor drains discharge.
- ✓ Plug floor drains connected to the storm or sanitary sewer if they are located in an area subject to spills of hazardous chemical. If necessary install a sump that is pumped regularly.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Missouri Department of Natural Resources

"Integrity and excellence in all we do"

Storm Water

Storm water runoff is part of the natural water cycle. However, water runoff from marina parking lots and maintenance areas can carry pollutants into lakes, ponds, rivers and streams. Paint chips, sawdust, metal filings, oils, grease or fuel on the ground can be swept into surface waters by the next storm. Unless the runoff is controlled or treated in some manner, these pollutants will end up in the marina basin. Implementing runoff control and pollution prevention measures will help protect the waterways.

Permits

The federal Clean Water Act requires marinas that have fueling facilities, equipment cleaning, or maintenance on-site (including rehabilitation, mechanical or structural repairs, painting, and lubrication) to obtain a storm water discharge permit from the Missouri Department of Natural Resources.

General permits cover an entire industry, and are issued statewide for a period of five years. A general permit is available for the water transportation industry. It is up to the individual facility operator to apply for the permit and pay the annual permit fee. The general permit will require you to develop a storm water pollution prevention plan (SWPPP) for the site. SWPPP plans use "best management practices" (BMPs) to control and minimize potential contaminants to storm water at your marina.

Site-specific permits may be written for businesses that store toxic materials, have large amounts of potential contaminants exposed to rainfall or is one of only a few of its kind in the state. The department may require an owner to apply for a site-specific permit if it is needed to better protect water quality. This permit also has an annual fee.

Construction Projects

If your construction project includes grading, excavating or the removal of vegetation in an area one acre or larger, you will need a land disturbance permit. Land disturbance permits require the use of BMPs to minimize soil erosion from the site. Land disturbance BMPs include maintaining existing vegetation, temporary re-vegetation, silt-fences, straw bales and sediment basins.

Remember

- Obtain required storm water permits if your marina has facilities for fueling, equipment cleaning or maintenance.
- Obtain required land disturbance permits when doing construction projects.
- Use BMPs to protect the marina basin water quality.

Pollution Prevention Options

Pollution prevention practices can protect the water quality at your marina, reduce risk to employees and save you money. Some storm water BMPs for marina operations are listed below:

- ✓ Perform boat maintenance and repair inside buildings as much as possible.
- ✓ Use spray booths or tarp enclosures for outside abrasive blasting or sanding activities.
- ✓ Designate a specific maintenance area away from the water.
- ✓ Use vacuum sanders to remove paint and collect paint dust.
- ✓ Design hull maintenance areas with impervious surfaces to make cleanup easier.
- ✓ Vacuum or sweep hull maintenance area. Minimize use of water hose for cleaning.
- ✓ Use tarps, screens or filter cloths under the boat to capture pollutants when an impervious surface is not available.
- ✓ Sweep parking lots regularly.
- ✓ Use grass swales between impervious areas and the marina basin.
- ✓ Use porous pavement in parking lots to help minimize runoff.
- ✓ Use oil/grit separators to capture petroleum spills and coarse sediment.
- ✓ Use storm water catch basins at marinas with storm sewers.
- ✓ Boat wash water is “wastewater.” It needs to be collected and treated rather than allowed to run into the lake, stream or river
- ✓ Post signs on fuel docks that explain proper fueling procedures.
- ✓ Train fuel dock staff in spill prevention, containment and cleanup procedures.
- ✓ Establish a “pet relief” area. Ask boaters to clean up after their pets.

Additional Resources

Missouri’s storm water regulations are found in 10 CSR 20-6.200 and can be viewed at www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf.

The template for the general storm water permit MO-R80E, Water Transportation, can be found at www.dnr.mo.gov/wpscd/wpcp/permits/issued/R80E000.pdf.

A sample SWPPP for marinas can be found at www.epa.gov/reg3wapd/stormwater/index.htm.

The EPA guide “*Storm Water Management for Industrial Activities*”, EPA 832-R-92-006, can be downloaded from: www.dep.state.fl.us/water/stormwater/npdes/guidance_links.htm.

“EPA New England Marina Web Site Topics” Web page can be viewed at: www.epa.gov/region1/marinas/marinatopics.html#bmp.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Used Oil Disposal and Recycling

Improper disposal of used oil can cause damage to the environment and result in costly clean up. In Missouri, there are certain things you must do and certain things you cannot do when managing used oil from your business.

You cannot dispose of used oil at a landfill or with your regular trash. You cannot dispose of your used oil into the environment or create a public nuisance. Used oil **cannot** be used for dust suppression or killing weeds on gravel roads, parking lots or elsewhere.

Used oil is regulated under the federal and state hazardous waste laws and regulations. If you recycle your used oil, it is regulated under special used oil regulations. Recycled used oil includes oil that is re-refined, reclaimed, reprocessed or burned for energy recovery. If you do not recycle your used oil, it is regulated as a hazardous waste. The waste code for used oil in Missouri is DO98. See the *Hazardous Waste* guide sheet for more information.

Off-Site Shipments of Used Oil

Transporters who haul used oil must have EPA identification numbers and Missouri hazardous waste transporter licenses. Contact the department for a list of transporters with Missouri hazardous waste transporter licenses.

You can transport your own used oil if:

- you transport 55 gallons or less at any time,
- it is your own used oil or used oil accepted from do-it-yourselfers or exempt farmers,
- you take the oil to an used oil collection center or used oil aggregation point, and
- you use your own vehicle or an employee's vehicle.

Mixing other wastes with used oil

Be very careful what you mix with used oil. You can mix certain ignitable hazardous wastes with used oil if the mixture you end up with is not ignitable. If you are a small or large quantity generator of hazardous waste and the hazardous waste is something other than ignitable (for example if it's a listed hazardous waste.), mixing it with your used oil will make your used oil a hazardous waste. For example, mixing your listed hazardous waste spent solvent with used oil will cause all of the oil mixture to be hazardous waste. See the *Hazardous Waste* guide sheet for more information.

On-Site Space Heater

In your shop you may burn your own used oil, oil from do-it-yourselfers and oil from farmers who generate fewer than 25 gallons per month, in specially-designed used oil space heaters. The used oil space heater must have a capacity of 500,000 BTU per hour or less and be vented outside. You do not need to notify the department if you are burning used oil, but you must notify the department if you are collecting used oil from do-it-yourselfers or farmers.

If you are a small quantity or large quantity hazardous waste generator, you cannot burn any mixture of used oil with hazardous waste in a used oil space heater. If you are a conditionally exempt hazardous waste generator of ignitable hazardous waste, you may mix it with your used oil for burning. However, this can damage the space heater and release hazardous emissions into the environment. Before adding anything to your used oil, check with your used oil transporter or used oil space heater manufacturer to make sure that practice is acceptable.

Remember

- You cannot send used oil to the landfill or pour it out onto the ground.
- If you are not recycling your used oil, it is a hazardous waste.
- If someone else is hauling your used oil, they must have an EPA identification number and be registered with the department.
- You may burn your own used oil in a used-oil burner smaller than 500,000 BTU/hour that is properly vented.
- You may collect and burn used oil from do-it-yourselfers (DIY) or exempt farmers, but you must first notify the department that you are a DIY used oil collection center.

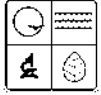
Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Keep used oil separate from other wastes.
- ✓ If you remove oil-laden parts, place them on a drip pan rather than the floor.
- ✓ Do not use the oil drip pan to collect antifreeze or solvent.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Used Oil Filters

A short time ago, the majority of used oil filters were disposed of in landfills. Today, millions of filters are recycled. Oil filters are generally made from paper, metal and rubber. Used oil filters have value because they can be burned for fuel and/or the metal components can be recycled. Businesses throughout the country are choosing to recycle, rather than meet minimum standards for filter disposal.

After the filter has been removed from the boat, you must remove residual oil before disposal or recycling. You can remove used oil from filters by:

- puncturing the filter anti-drain back valve in the dome end and hot-draining
- hot draining and crushing
- dismantling and hot-draining or
- any other hot-draining method that will remove used oil.

Hot-draining is draining the oil from the filter for 12 hours at near-engine operating temperatures and above 60 degrees Fahrenheit. You can send oil filters that have been hot-drained to a sanitary landfill for disposal. The oil removed from oil filters must be properly collected and managed as used oil. Undrained oil filters must be shipped as used oil with transporters who have a Missouri license and an EPA identification number.

Recycling used oil filters saves natural resources and helps protect the environment. Two general recycling options exist. The entire filter can be burned for fuel, or the parts of the used filter can be separated, with the scrap metal being recycled and the paper and rubber burned as fuel.

Scrap steel processing or recycling facilities, as well as steel smelters, can recycle the metal components of the filter. Some accept whole or crushed filters, while others only accept the metal components. Used oil filters can also be sent to industrial burners (such as cement kilns) where the entire filter, or just the paper and/or rubber components, can be burned for fuel.

Scrap metal dealers may accept crushed filters for recycling. There are also companies that specialize in oil filter recycling. The Filter Manufacturers Council established a Used Filter Hotline in 1994. You can call 1-800-99-FILTER (993-4583) to get a list of companies that supply filter management services. This information can also be found at: www.filtercouncil.org.

The legal requirements for managing used oil filters can be found in the federal regulations, 40 CFR 261.4(b)13.

Remember

- Used oil filters must be properly drained before they can be recycled or sent to the landfill.
- Used oil drained from filters must be collected and managed properly (see the guide sheet *Used Oil*).

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ When removing the oil filter, use a drip pan under the vehicle to catch oil spills.
- ✓ When draining filters, carefully collect the oil to avoid spills.
- ✓ To prevent spills, put filters on a tray or in a container before moving them.
- ✓ Store filters in a container large enough to hold any used oil that might seep from the filters.
- ✓ Some shops use mobile oil filter-draining containers on wheels for clean, easy transporting.
- ✓ Empty the mobile containers into the used oil storage container routinely to avoid overflow.
- ✓ Recycle used oil filters through a scrap metal or used oil filter recycler.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Used Oil Storage

Improper storage of used oil can increase the risk of spills and leaks that could harm the environment and prove costly to clean up. In Missouri, there are some legal requirements for storing used oil from your business.

If you store used oil, you must:

- label the storage container(s) with the words "Used Oil,"
- keep containers in good condition,
- not store used oil collected from do-it-yourselfers longer than 12 months,
- keep containers closed if they are exposed to rain or snow (except when removing or adding used oil),
- inspect storage areas regularly for leaks or spills (clean up as required), and
- if a container is leaking, fix it immediately or move the oil to another container.

To help prevent spills, you may wish to put your used oil containers in a "secondary containment" structure. Secondary containment is the name used to describe a structure or container that holds the storage tank and can hold the liquid if the storage tank leaks. The secondary containment should have a volume: at least as large as the largest container, or 10 percent of the total volume of all the containers, whichever is greater.

If you are storing a large amount of petroleum products and used oil (more than 1,320 gallons in aboveground tanks), you are required to have spill prevention measures. See the *Petroleum Storage Tanks* guide sheet for more information.

Your community or county may have specific requirements for storing oil. Check with local authorities, particularly your fire department.

The department recommends not storing used oil in underground tanks.

Storing containers on an impervious surface (like sealed or treated concrete) helps contain spills and makes clean up easier. Some shops store their used oil containers on pallets or slightly elevated in some way to make it easier to spot spills or leaks.

Clean up any spills immediately. Spills of more than 25 gallons of used oil or other petroleum products from underground storage tanks must be reported to the department. Petroleum spills from any other source must be reported if the spill is more than 50 gallons. If the petroleum spills into a waterway such as a creek, lake, river or stream, or into a ditch that drains to a waterway, it must be reported to the department no matter how small the spill.

The legal requirements for used oil storage can be found in 10 CSR 25, Chapter 11 of the Missouri Code of State Regulation and in the federal regulations, 40 CFR Part 279.

Remember

- Label storage containers and keep them in good condition.
- Inspect storage areas regularly. Fix leaks immediately or move the oil to another container.
- If containers are exposed to rain, keep them closed except when adding or removing used oil.
- Check with local authorities to learn if there are local requirements.
- Report oil spills, as required, to the department.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Keep used oil separate from other wastes.
- ✓ Have separate storage containers for antifreeze, solvents or other fluids that could accidentally be mixed with used oil.
- ✓ Use large drum funnels or fill tubes when filling used oil drums. Store funnels on a drip pan to collect dripping oil.
- ✓ Clean spills with a rag or mop that can be wrung-out and reused. A biodegradable soap and water solution may be used to clean up oil sheen.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Waste Tires

Marinas with maintenance services may remove damaged trailer tires to install the new ones they sell. Tires that are too damaged or worn for reuse are waste tires.

Storage

Waste tires must be stored in a way that does not cause pollution, health or nuisance problems. Since tires can collect water and create breeding grounds for mosquitoes, you should protect your storage area from rainwater or provide some other way to control mosquitoes. Tires may also pose a fire hazard, so they should always be stored away from ignition sources.

If you store 25 to 499 tires you are a waste tire collection center and must meet certain requirements. Anyone who stores 500 or more tires must have a permit from the Missouri Department of Natural Resources as a waste tire site. If you cut, shred, bale, chip or otherwise alter waste tires and accumulate 25 or more tires you must apply for a waste tire processor permit.

Hauling

If you pay someone to haul away your waste tires, that person needs a permit from the Department of Transportation, Motor Carrier Services. However, you or other employees from your business do not need a permit to haul tires generated from your business. The tires may be hauled to a tire processor, site or end user. They may be hauled to a landfill if they are cut, chipped or shredded.

Record Keeping

You must keep a record of how many tires are taken in and removed from your facility each month. Include the name of the hauler and the date the tires were removed. You may contact the Department of Natural Resources to get a record keeping form or check www.dnr.mo.gov/alpd/swmp/homeswmp.htm.

Disposal

Never burn tires in Missouri. Even in areas where home waste burning is allowed, no one is allowed to burn tires. Businesses are not allowed to burn any type of waste for disposal.

You cannot dispose of tires in a landfill *unless* the tire is cut up in at least three pieces of about equal size or in half circumferentially (forming two circles). Because tires are usually belted, special equipment is usually needed to cut tires for disposal. If the tire is cut by hand, the belts in the tire can cause injury. There are places to legally take your uncut waste tires in Missouri. They usually charge a fee per tire and can accept whole tires. Contact the department for a list of sites or check the Web site: www.dnr.mo.gov/alpd/swmp/homeswmp.htm for a list of sites. (Note: If you purchase your tires through a retailer, they sometimes accept waste tires back for a fee.)

Uses for Waste Tires

There are options for using waste tires rather than disposing of them. Waste tire chips can be used for many things such as mulch on playgrounds or as fuel in electrical power plants or cement kilns. Contact the department for information on reuse and recycling options.

Sometimes a person wants a few waste tires for a home project. If someone wants to use over 100 tires in a year, they need approval from the department. Individuals can haul their own waste tires for their own use, but you still need to keep a record of who takes your tires, when they take them and how many they take. Using tires for erosion control is not a good idea. In Missouri, you are not allowed to place tires in waters of the state. This includes streams, rivers, gullies, and wet-weather creeks, among other areas.

Note: The legal requirements for waste tires can be found in §260.270-278, *Revised Statutes of Missouri (RSMo)* and in Title 10, Division 80, Chapter 8 of the *Code of State Regulations* (10 CSR 80-8).

Remember

- Do not burn or bury waste tires.
- Waste tires cannot go to the landfill unless they are cut into three or more pieces or in half circumferentially (in two circles).
- If you wish to store 25 or more waste tires, you must follow requirements for waste tire collection centers. If you wish to store 500 or more tires, you must apply for a waste tire site permit. If you wish to process tires by cutting, chipping or otherwise altering them you must apply for a waste tire processor permit.
- Anyone paid to haul waste tires needs a permit from the department.

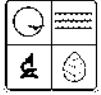
Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ During the summer months, process and remove waste tires frequently to eliminate having to spray for mosquitoes with pesticides.
- ✓ Sort out reusable, retreadable and bias ply tires and sell or give them to recyclers.

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm



Wastewater

Clean water is an essential element of good boating. Good boating and profitable marina businesses go hand in hand. Helping protect water quality helps protect your marina business.

Properly operated and maintained sewage collection and treatment facilities, sewage pumpout stations and portable toilet dump stations help prevent the release of untreated sewage into surface waters.

Marinas can generate both "domestic wastewater" and "industrial wastewater." Domestic wastewater is wastewater from restrooms, kitchen facilities, pumpout stations or portable toilets. Industrial wastewater is any process wastewater that is generated by maintenance or repair facilities.

You may be required to pretreat industrial wastewater before discharging it to a public sewer. Pretreatment is the reduction, elimination or alteration of pollutants prior to discharge to a publicly owned wastewater system.

If public sewers and wastewater treatment are not available, you must carefully manage your marina's wastewater.

You may discharge domestic wastewater to an on-site wastewater system that discharges to a soil absorption system (e.g. septic tank and drainfield). The Missouri Department of Health and Senior Services regulates these systems. Industrial wastewater **cannot** be discharged to these on-site wastewater systems. **Do not** send industrial wastewater to a septic system, doing so could contaminate the groundwater.

Industrial wastewater **can** be treated in a marina-owned wastewater treatment plant permitted by the Missouri Department of Natural Resources. Another option is to collect your industrial wastewater and send it off-site to another department permitted wastewater treatment facility

You must manage **hazardous** wastewater by sending it to a permitted hazardous waste facility. See the *Hazardous Wastes* guide sheet, for more information.

Remember

- Obtain required permits prior to installing wastewater treatment systems.
- Treat your "industrial wastewater" at a wastewater treatment plant that is permitted by the Missouri Department of Natural Resources.
- If your business is served by a public wastewater utility, contact the utility to determine wastewater pretreatment requirements.
- Do not send "industrial wastewater" to a septic system.
- Do not dispose of wastewater into storm drains, onto the ground or into a body of water.

Pollution Prevention Options

Pollution Prevention can save money, protect the environment and reduce risk to people. Here are some suggestions:

- ✓ Properly operate and maintain wastewater collection and treatment systems.
- ✓ Boat wash water is **wastewater** and it needs to be collected and treated. Do not allow it to run into the lake, stream or river.
- ✓ Provide sewage pumpout facilities, portable toilet dump stations and clean convenient restroom facilities for boaters. Encourage boaters to dispose of their sewage properly.
- ✓ Place a bilge socks in the engine test tank to absorb contaminants.
- ✓ Test engine test tank wastewater for TCLP metals, VOCs and ignitability to determine if it is hazardous waste. If it is hazardous, handle it as outlined in the *Hazardous Waste* guide. If it is not hazardous, handle as industrial wastewater.
- ✓ Reduce water usage to minimize quantity of wastewater produced.
- ✓ Sweep floors prior to washing.
- ✓ Provide spill protection for fluids.

Additional Resources

Missouri's wastewater permitting regulations can be found in 10 CSR 20-6.010, located at www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf and at 19 CSR 20-3.015, located at www.sos.mo.gov/adrules/csr/current/19csr/19c20-3.pdf.

"Who Regulates Wastewater in Missouri" can be downloaded at www.dnr.mo.gov/oac/pub1296.pdf.

Contact the Missouri Department of Health and Senior Services, Section of Environmental Health, at their toll free number, 1-866-628-9891; or go to their Web site at www.dhss.state.mo.us/ehcdp/onsitehome.htm

For More Information

Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 526-6627
www.dnr.mo.gov/oac/env_assistance.htm

UPDATE SERVICE FOR MARINA GUIDE

Please complete this form and send it to the address below to receive FREE UPDATES to "Preventing Pollution at Marinas." You will receive new and revised pages as they are developed. Please print clearly or type.

Name: _____

Facility: _____

Mailing Address: _____

City/State/Zip: _____

Please help us improve our service by answering these questions.

1. How did you learn of this document?

- ☐ It came in the mail
- ☐ Read about it in a departmental newsletter
- ☐ Heard about it from trade association
- ☐ Other _____

2. What topics would you like for us to add to the guide? _____

3. Did you know about the Environmental Assistance Office (EAO) before receiving this document? ☐ Yes ☐ No

4. Have you ever used EAO's environmental information or guidance services? ☐ Yes ☐ No

5. If yes, were you satisfied with the service provided? ☐ Yes ☐ No (please explain)

**Mail to: Missouri Department of Natural Resources
Environmental Assistance Office
P.O. Box 176
Jefferson City MO 65102-0176**

or fax to: (573) 526-5808

Questions about this guide or other services may be directed to EAO at 1-800-361-4827.

